

(19)日本国特許庁 (JP)

(12) 公開特許公報 (A)

(11)特許出願公開番号
特開2001-205025
(P2001-205025A)

(43)公開日 平成13年7月31日 (2001.7.31)

(51)Int.Cl.⁷
B 0 1 D 46/00
F 2 4 F 7/00

識別記号
3 0 1

F I
B 0 1 D 46/00
F 2 4 F 7/00

3 0 1
4 D 0 5 8
A

テマコード(参考)

審査請求 有 請求項の数3 O L (全5頁)

(21)出願番号 特願2000-14960(P2000-14960)

(22)出願日 平成12年1月24日 (2000.1.24)

(71)出願人 599148743

株式会社東伸サービス
愛知県日進市浅印町平子4番地の622

(72)発明者 中野 弘

愛知県日進市浅印町平子4番地の621

(74)代理人 100112531

弁理士 伊藤 浩二

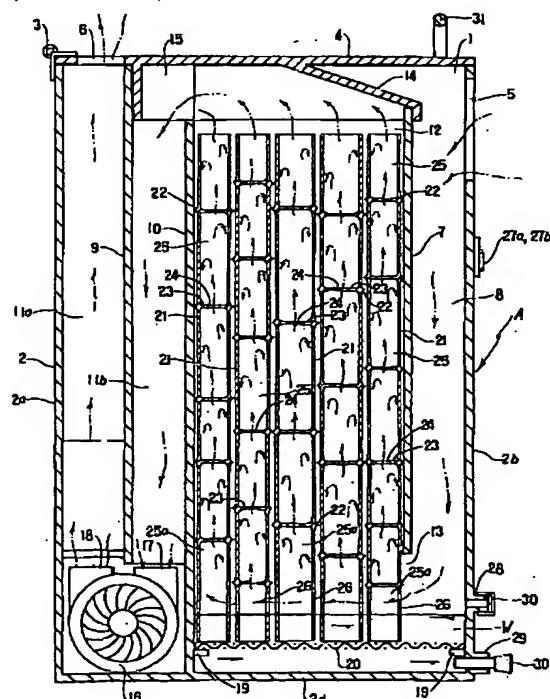
Fターム(参考) 4D058 JA02 JA46 JB13 TA01

(54)【発明の名称】 空気清浄機

(57)【要約】

【課題】 室内に設置して該室内の空気を浄化でき、しかも竹という自然物を有効利用して構造が簡単でコストも低廉にし得る空気清浄機を提供する。

【解決手段】 空気取入口5と、該空気取入口5から取り入れられた空気を沪過するための沪過槽12と、沪過された空気を外に放出するための浄化空気排出口6と、前記空気取入口5から空気を取り入れ沪過槽12を通して浄化空気排出口6から放出する送風機16とを備え、前記浄化槽12内に内部を貫通させて空気が通過する竹筒21を複数本配置し、送風機16を作動させ空気取入口5からの汚れた空気を沪過槽12の複数の竹筒21内を通過させることにより空気内の塵埃やタバコの煙などを取り去り、浄化された空気を浄化空気排出口6から放出する。



【特許請求の範囲】

【請求項1】 空気を清浄機本体内に取り入れるための空気取入口と、該空気取入口から取り入れられた空気を沪過するための沪過槽と、沪過された空気を清浄機本体外に排出するための浄化空気排出口と、前記空気取入口から空気を取り入れその空気を沪過槽を通して浄化空気排出口から放出する送風機と、を備え、前記浄化槽内に内部を貫通させて前記空気が通過する竹筒を複数本配置したことを特徴とする空気清浄機。

【請求項2】 竹筒は生の竹であって、その一部は水中に浸漬されている請求項1記載の空気清浄機。

【請求項3】 竹筒の各節には円形状の通孔が開設され、該通孔の直径が該竹筒の内径の約三分の一である請求項1または2記載の空気清浄機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、室内などに設置して該室内的空気を浄化し、しかも竹という自然物を有効利用して構造が簡単でコストも低廉にし得る空気清浄機に関するものである。

【0002】

【従来の技術】従来、例えば室内に設置される空気清浄機は、送風機により空気取入口から取り入れられた空気を沪過槽に着脱自在に設置されるフィルターに通し、該フィルターで沪過され浄化された空気を浄化空気排出口から再び室内に放出する仕組みになっており、これにより室内の空気を浄化するようしている。そして、定期的に前記汚れたフィルターを新しくしている。

【0003】

【発明が解決しようとする課題】しかしながら、このような空気清浄機は空気の沪過のためのフィルターを定期的に新しくしなければならず、汚れたフィルターを捨てて新しいものと交換するかまたは前記フィルターを掃除して再び使用するなどいずれもメンテナンスが面倒であり、また汚れたフィルターを捨てる場合はゴミがその分増えゴミ処理上好ましくない。また、構造が複雑で製作に手間が掛かるばかりか交換用のフィルターを用意するなどコスト的に高くつくものであった。

【0004】ところで、近時自然物、例えば竹などは利用価値が少なく、ほとんど野積み状態で放置されているのが現状であって、ゴミ処理の問題にも発展する可能性もあり、この有効利用が強く要望されている。そこで、本発明は上記課題に鑑みなされたもので、自然に生える竹を利用して構造が簡単でしかも製作が容易でありかつメンテナンスもほとんど必要なく長期に亘り使用できる空気清浄機を提供することを目的とするものである。

【0005】

【課題を解決するための手段】かかる目的を達成するため、本発明に係る空気清浄機は空気を清浄機本体内に取り入れるための空気取入口と、該空気取入口から取り入

れられた空気を沪過するための沪過槽と、沪過された空気を清浄機本体外に排出するための浄化空気排出口と、前記空気取入口から空気を取り入れその空気を沪過槽を通して浄化空気排出口から放出する送風機とを備え、前記浄化槽内に内部を貫通させて前記空気が通過する竹筒を複数本配置した構成よりなる。そこで、送風機を作動させると空気取入口から汚れた空気が清浄機本体内に取り入れられ沪過槽の複数の竹筒内を通過する。この際、空気内の塵埃やタバコの煙などが竹筒内周面に付着して沪過され空気の浄化が図られる。そして、浄化された空気は浄化空気排出口から清浄機本体外に放出される。

【0006】前記竹筒は生の竹が好ましく、空気が生の竹内を通過することにより、森林浴と同等のリラクゼーション効果が得られる。また竹筒の一部が水中に浸漬されていることから、竹筒が常に潤い浄化効果が下がることは無く、しかも適度に湿った空気を放散することができ加湿効果もある。

【0007】竹筒の各節には竹筒の内径の約三分の一の寸法の直径を有する円形状の通孔を開設することが望ましい。これにより、竹筒の各節間の空洞部内に空気が滞留し易く浄化効果が向上する。

【0008】

【発明の実施の形態】以下、本発明に係わる空気清浄機の実施の形態を図面に基づき説明する。図1は空気清浄機の斜視図、図2は同蓋板を開いた状態を示す斜視図、図3は同平面断面図、図4は同側面断面図である。図中、Aは空気清浄機であって、上面が開口しかつ内部が中空の縦長直方体形状からなり、プラスチック製からなる。前記上面開口1には清浄機本体2の後壁2a上端縁に蝶番3を介して前記上面開口1を塞ぐ蓋板4が開閉自在に装着されている。そして、前壁2bの上部に空気取入口5が開設されまた前記蓋板4の後部に浄化空気排出口6が開設されている。

【0009】前記清浄機本体2内は、図3、4に示すように前壁2bと両側壁2c間に張設される第一隔壁7との間に空気取入口5と連なる取入通路8が形成されている。また、後壁2aと両側壁2c間に張設される第二隔壁9および該第二隔壁9と第三隔壁10との間に排出通路11a、11bが形成されている。そして、前記第一隔壁7と第三隔壁10との間に沪過槽12が形成されている。更に詳しく説明すると、前記第一隔壁7の下端部は切除されその開口13を介して取入通路8と沪過槽12とが連通している。一方、前記蓋板4の裏面に略四角錐形状の角錐蓋板14が一体に設けられ、蓋板4を閉めたとき該角錐蓋板14により沪過槽12の上端面を密閉するようになっている。また、該角錐蓋板14の後部に前記排出通路11bと連通する引入口15が設けられ、該引入口15を介して沪過槽12と排出通路11a、11bとが連通している。更に、第二隔壁9の下端部が切除されており、該切除部に送風機としてのシロッコファ

ン16が配設されている。該シロッコファン16の吸気口17側が前記沪過槽12と連なる排出通路11bに接続され、排気口18側が浄化空気排出口6と連なる排出通路11aに接続されている。このように沪過槽12の上端面は角錐蓋板14により密閉状に覆われているので、空気が漏れるようなことはなく、シロッコファン16の吸引効果が高められる。

【0010】前記沪過槽12の底部には、底壁2dよりやや上方に前壁2b、側壁2c及び第三隔壁10の内周面に設けられた桟木19により周縁を支持されて棚網20が水平に配設され、更に該棚網20が漬かるようにして水Wが貯留される。そして、沪過槽12内に下端が前記棚網20の上面に支持されるようにして複数本の竹筒21が立設配置されている。該各竹筒21は、自然物である生の竹が最適であり、前記沪過槽12の棚網20上面に立設したとき上端が蓋板4の下面よりやや下に位置する長さに設定されている。また図5に示すように上下端面が開放されその間に節22を複数有している。各節22の節板部23にはそれぞれその略中心位置に上下に貫通する円形状の通孔24が開設されている。該通孔24の直径は竹筒21の内径の約三分の一が望ましいが、その他に前記直径と略同じかその二分の一、四分の一ないし十分の一程度がよい。この通孔24によって各節22間の空洞部25が連通することになる。竹筒21の下端部に最下端の空洞部25aと連通する空気流入口26が複数開設されている。なお孔を開設する替わりに下端部をきり欠くようにしても良い。このようにして形成される竹筒21は前記沪過槽12に空気流入口26を下側にして隙間無く立設される。この際、各竹筒21の下端は水Wに漬かるが、空気流入口26は漬からないようになっている。

【0011】前記清浄機本体2の前壁2bにはシロッコファン16を電機的に作動させるためのON・OFFスイッチ27a, 27bが設けられており、該ON・OFFスイッチ27a, 27bと前記シロッコファン16は電機的に接続されしかも電源に接続できるようになっている。また、前壁2bの下部に前記沪過槽12内に水Wを注入または放出するための注入口28と放出口29が設けられ着脱自在のキャップ30により常時は封止されている。

【0012】本発明に係わる空気清浄機Aは上記構成からなり、次にその作用を説明する。例えば、前記空気清浄機Aを室の適宜位置に据置する。そして、ONスイッチ27aを押してシロッコファン16を作動させると、図4矢視線に示すように空気取入口5から清浄機本体2内に汚れた空気が取り入れられ、取入口8を下降し開口13から沪過槽12内に入ると共に空気流入口26から各竹筒21内を上昇する。各竹筒21内では空気が通孔24で絞られ空洞部25で膨らむこととなって各空洞部25内で渦を巻き空洞部25の内周面に空気中の例え

ば塵埃やタバコの煙が付着する。これを繰り返して上端の開放端から綺麗な空気として放出される。よって、空気の沪過効果を上げるためには、空気の処理能力と滞留時間とを考慮し前記通孔24の直径が竹筒21の内径の約三分の一程度が良い。また、空洞部25は多いほうが空気が滞留し易く良い。そして、入口15を介して一方の排出通路11bを下降してシロッコファン16に吸引され他方の排出通路11aに排出されて該排出通路11aを上昇して浄化空気排出口6から室内に放出される。このようにして空気の浄化が行われる。またこの際、水Wが貯留されていることから、ある程度の湿度も保持されストーブ等を使っている室の乾燥防止に役立つ。また同時に生の竹を使用していることから、空気が生の竹内を通過することにより、自然の香りが醸し出され森林浴と同等のリラクゼーション効果が得られる。

【0013】このようにして、長い間使用することにより竹筒21の内周面に塵埃やタバコの煙が多く付着して交換時期がきたときは、取っ手31をつかんで蓋板4を開け竹筒21を新しいものと交換する。また、水Wは不足すれば、キャップ30を外し注入口28にホースを接続して水Wを補給する。前記竹筒21はそのまま沪過槽12内に立設したが、竹筒21の外周面に布を巻いて覆うようにしても良く、このようにすれば、生の竹が長持ちするばかりか各竹筒21間の隙間も小さく塞がれ沪過効果が向上する。また、竹筒21は横に寝かせて配置するよりも良く、この場合は竹筒21を縦に半割にして積み重ねるようとする。

【0014】以上のように、本発明に係わる空気清浄機Aは自然物である竹を使用したものであって、本来あまり利用されていないものの有効利用が図られる。また、空気清浄機Aの構造が簡単で製作が容易となり、コストも低廉となし得る。

【0015】

【発明の効果】以上説明したように、本発明に係わる空気清浄機は、空気取入口と、空気を沪過するための沪過槽と、沪過された空気を外に排出するための浄化空気排出口と、前記空気取入口から空気を取り入れその空気を沪過槽を通して浄化空気排出口から放出する送風機と、を備え、前記浄化槽内に内部を貫通させて空気が通過する竹筒を複数本配置した構成からなり、送風機を作動させることにより汚れた空気が清浄機本体内に取り入れられ沪過槽の複数の竹筒内を通過しその空気内の塵埃やタバコの煙などが竹筒内周面に付着して沪過され、浄化された空気が浄化空気排出口から清浄機本体外に放出され、これにより空気の浄化が図られる。

【0016】そして、自然物である竹を利用していることから、本来あまり利用されていないものの有効利用が図られ、しかもこれにより空気清浄機の構造が簡単で製作が容易となり、コストも低廉となし得る。また、竹筒の交換は長い間行う必要が無く、これによりメンテナン

スが容易で故障も少なく長期使用が可能となる。

【0017】また、竹筒が生の竹であると、空気が生の竹内を通過することにより、自然の香りが醸し出され森林浴と同等のリラクゼーション効果が得られる。また竹筒の一部が水中に浸漬されていることから、竹筒が常に潤い戻効果が下がることは無く、しかも適度に湿った空気を放散することができ加湿効果もある。

【0018】竹筒の各節には竹筒の内径の約三分の一の寸法の直徑を有する円形状の通孔を開設するようすれば、竹筒の各節間の空洞部内に空気が滞留し易く浄化効果が向上する。

【図面の簡単な説明】

【図1】本発明に係わる空気清浄機の斜視図。

【図2】同蓋板を開いた状態を示す斜視図。

【図3】同平面断面図。

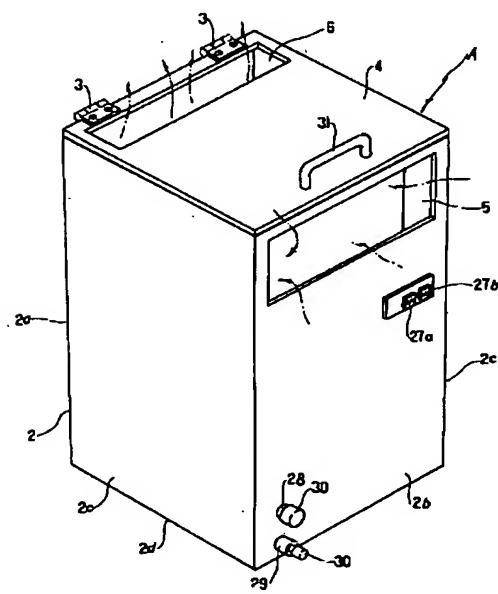
【図4】同側面断面図。

【図5】竹筒の斜視図。

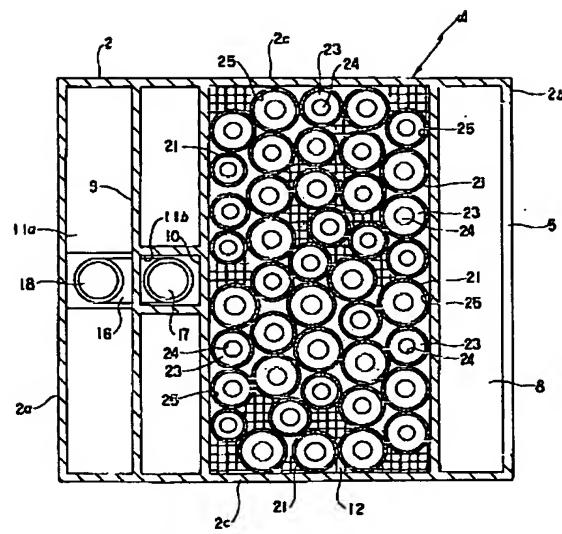
【符号の説明】

2	清浄機本体
5	空気取入口
6	浄化空気排出口
12	戻槽
16	送風機(シロッコファン)
21	竹筒
24	通孔
A	空気清浄機
W	水

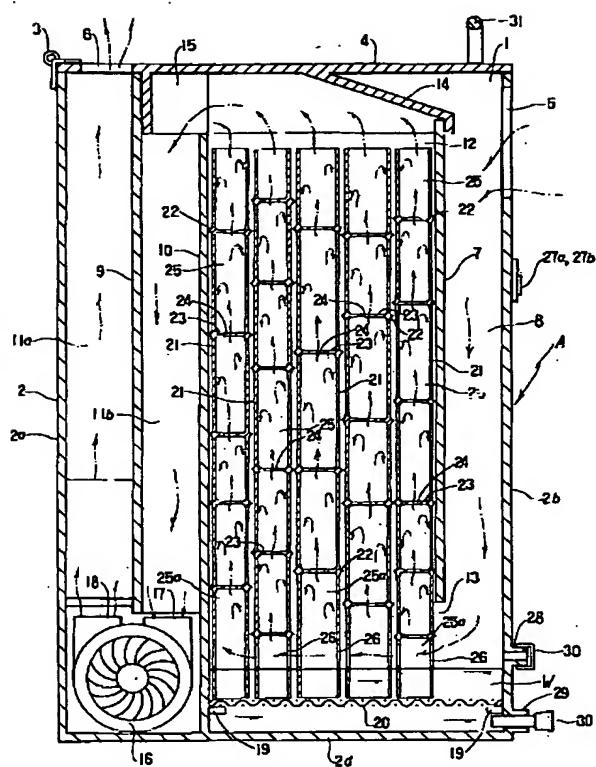
【図1】



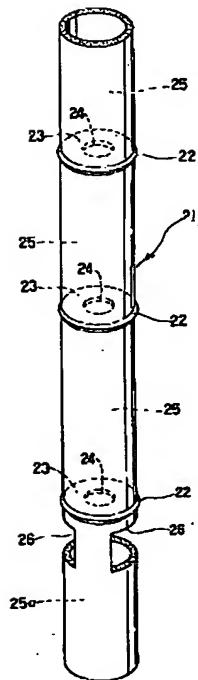
【図3】



【図4】



【図5】



PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-205025
(43)Date of publication of application : 31.07.2001

(51)Int.CI.

B01D 46/00
F24F 7/00

(21)Application number : 2000-014960

(71)Applicant : TOSHIN SERVICE:KK

(22)Date of filing : 24.01.2000

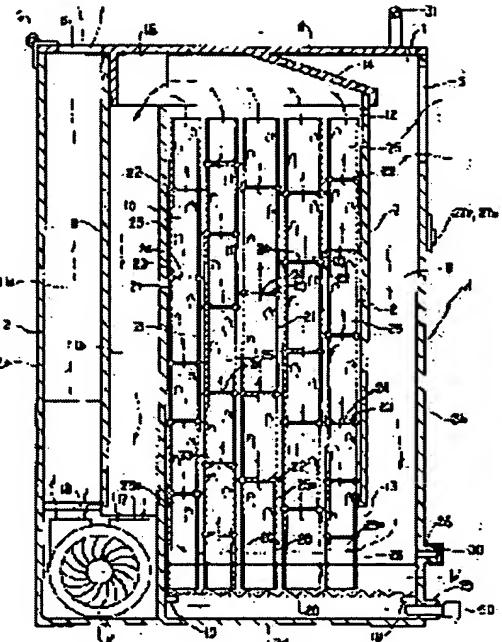
(72)Inventor : NAKANO HIROSHI

(54) AIR CLEANER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an air cleaner capable of being arranged in a room to clean indoor air and effectively utilizing a bamboo being a natural object to be made simple in structure and inexpensive.

SOLUTION: This air cleaner has an air intake port 5, a filter tank 12 for filtering air taken in from the air intake port 5, a cleaned air discharge port 6 for discharging filtered air to the outside and a blower 16 taking in air from the air intake port 5 and discharging cleaned air from the cleaned air discharge port 6 through the filter tank 12. A plurality of bamboo cylinders 21 permitting air to pass are arranged in the filter tank 12 and the polluted air from the air intake port 5 is passed through a plurality of the bamboo cylinders 21 by operating the blower 16 to remove dust or tobacco smoke in air and cleaned air is discharged from the cleaned air discharge port 6.



LEGAL STATUS

[Date of request for examination] 19.02.2001

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3472219

[Date of registration] 12.09.2003

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

**JPO and NCIP are not responsible for any
damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The air-intake for adopting air in the body of a clarification machine, and the lauter tub for filtering the air adopted from this air-intake, The purification air exhaust port for discharging the filtered air out of the body of a clarification machine, The air cleaner characterized by having arranged two or more bamboo pipes which are equipped with the blower which adopts air from said air-intake and emits the air from a purification air exhaust port through a lauter tub, are made to penetrate the interior in said septic tank, and said air passes.

[Claim 2] The part is an air cleaner according to claim 1 which a bamboo pipe is a raw bamboo and is immersed underwater.

[Claim 3] The air cleaner according to claim 1 or 2 whose diameter of this through-hole the through-hole of a circle configuration is established by each knot of a bamboo pipe, and is about 1/3 of the bore of this bamboo pipe.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any
damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is installed indoors etc. and purifies this indoor air, and moreover a natural object called a bamboo is used effectively, and structure is easy and is related with the air cleaner which can also make cost cheap.

[0002]

[Description of the Prior Art] The air cleaner installed in the former, for example, the interior of a room, is the structure which emits again indoors the air filtered and purified with through and this filter in the air adopted from the air-intake by the blower by the filter installed in a lauter tub free [attachment and detachment] from a purification air exhaust port, and he is trying to purify indoor air by this. And said unclean filter is periodically made new.

[0003]

[Problem(s) to be Solved by the Invention] However, such an air cleaner has a troublesome maintenance, and when throwing away the unclean filter, its dust increases that much, and its neither, such as having to make the filter for filtration of air new periodically, throwing away the unclean filter, and exchanging for a new thing, or cleaning said filter, and using it again, is desirable on refuse disposal. Moreover, it was what is highly attached in cost that structure prepares the filter of to be complicated and the for about [that manufacture takes time and effort] or for exchange etc.

[0004] By the way, recently, the present condition is that a natural object, for example, a bamboo etc., has little utility value, and it is almost left in the state of open freighting, it may develop also into the problem of refuse disposal, and this deployment is demanded strongly. Then, using the bamboo which was made in view of the above-mentioned technical problem, and grows automatically, this invention is easy structure, moreover easy to manufacture, and hardly and it also aims a maintenance at offering the air cleaner which it continues and can be used for a long period of time.

[0005]

[Means for Solving the Problem] An air-intake for the air cleaner concerning this invention to adopt air in the body of a clarification machine, in order to attain this purpose, The lauter tub for filtering the air adopted from this air-intake, and the purification air exhaust port for discharging the filtered air out of the body of a clarification machine, It has the blower which adopts air from said air-intake and emits the air from a purification air exhaust port through a lauter tub, and consists of a configuration which has arranged two or more bamboo pipes which are made to penetrate the interior and said air passes in said septic tank. Then, if a blower is operated, the air which became dirty from the air-intake will be adopted in the body of a clarification machine, and it will pass through the inside of the bamboo pipe of the plurality of a lauter tub. Under the present circumstances, dust, cigarette smoke, etc. within air adhere to bamboo pipe inner skin, and are filtered, and purification of air is attained. And the purified air is emitted out of the body of a clarification machine from a purification air exhaust port.

[0006] The raw bamboo of said bamboo pipe is desirable, and when air passes raw Takeuchi, the relaxation effectiveness equivalent to a forest bath is acquired. Moreover, some bamboo pipes can diffuse the air which the bamboo pipe always got wet, and the purification effectiveness did not fall, and became wet moderately since it was immersed underwater, and there is the humidification effectiveness.

[0007] It is desirable to establish the through-hole of the circle configuration which has the diameter of the dimension of about 1/3 of the bore of a bamboo pipe in each knot of a bamboo pipe. Thereby, the purification effectiveness improves that air tends to pile up in the cavernous circles of each internode of a bamboo pipe.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of operation of the air cleaner concerning this invention is explained based on a drawing. This flat-surface sectional view and drawing 4 of the perspective view and drawing 3 which show the condition that drawing 1 opened the perspective view of an air cleaner, and drawing 2 opened this cover plate are these side-face sectional views. Among drawing, A is an air cleaner, and a top face carries out opening, and the interior consists of a longwise rectangular parallelepiped configuration in the air, and it consists of a product

made from plastics. Said top-face opening 1 is equipped with the cover plate 4 which plugs up said top-face opening 1 through a hinge 3 on the posterior-wall-of-stomach 2a upper limit edge of the body 2 of a clarification machine free [closing motion]. And an air-intake 5 is established in the upper part of front wall 2b, and the purification air exhaust port 6 is established by the posterior part of said cover plate 4 again.

[0009] In said body 2 of a clarification machine, as shown in drawing 3 and 4, the ** ON path 8 connected with an air-intake 5 is formed between front wall 2b and the first septum 7 stretched among both-sides wall 2c. Moreover, the discharge paths 11a and 11b are formed between the second septum 9 and this second septum 9 which are stretched between posterior-wall-of-stomach 2a and both-sides wall 2c, and the third septum 10. And the lauter tub 12 is formed between said first septum 7 and third septum 10. Furthermore, if it explains in detail, the lower limit section of said first septum 7 will be excised, and the ** ON path 8 and the lauter tub 12 will open it for free passage through the opening 13. On the other hand, the pyramid cover frame 14 of an abbreviation square drill configuration is formed in the rear face of said cover plate 4 at one, and when a cover plate 4 is shut, the upper limit side of a lauter tub 12 is sealed by this pyramid cover frame 14. Moreover, said discharge path 11b and ***** 15 open for free passage are formed in the posterior part of this **** cover frame 14, and a lauter tub 12 and the discharge paths 11a and 11b are open for free passage through this ***** 15. Furthermore, the lower limit section of the second septum 9 is excised, and the sirocco fan 16 as a blower is arranged in this excision section. It connects with discharge path 11b in which the inlet 17 side of this sirocco fan 16 is connected with said lauter tub 12, and connects with discharge path 11a in which an exhaust-port 18 side is connected with the purification air exhaust port 6. Thus, since the upper limit side of a lauter tub 12 is covered with the **** cover frame 14 in the shape of sealing, the suction effectiveness of a sirocco fan 16 is heightened so that air may not leak.

[0010] From 2d of bottom walls, as a periphery is supported with the stiffener 19 formed a little in the inner skin of front wall 2b and side-attachment-wall 2c and the third septum 10 up, a funnel web 20 is arranged horizontally and this funnel web 20 is flooded further, Water W is stored by the pars basilaris ossis occipitalis of said lauter tub 12. And into the lauter tub 12, as a lower limit is supported by the top face of said funnel web 20, set-up arrangement of two or more bamboo pipes 21 is carried out. The raw bamboo of this each bamboo pipe 21 which is a natural object is the optimal, and when it sets up on the funnel web 20 top face of said lauter tub 12, upper limit is set as the die length located a little downward from the inferior surface of tongue of a cover plate 4. Moreover, as shown in drawing 5 , a vertical end face is opened wide and it has two or more knots 22 in the meantime. The through-hole 24 of the circle configuration penetrated up and down to the abbreviation center position, respectively is established by the node section 23 of each knot 22. although about 1/3 of the bore of a bamboo pipe 21 is desirable as for the diameter of this through-hole 24 -- in addition, said diameter and abbreviation -- it is the same or the half, a quarter, or about 1/10 are good. The cavernous section 25 between each knot 22 will be open for free passage with this through-hole 24. Two or more establishment of the airstream inlet port 26 which is open for free passage with cavernous section 25a of the lowest edge in the lower limit section of a bamboo pipe 21 is carried out. in addition, instead of establishing a hole -- the lower limit section -- as -- lacking -- you may make . Thus, the bamboo pipe 21 formed turns the airstream inlet port 26 to said lauter tub 12 down, and is set up without a clearance. Under the present circumstances, although the lower limit of each bamboo pipe 21 is flooded with Water W, the airstream inlet port 26 is flooded.

[0011] The ON-OFF switches 27a and 27b for operating a sirocco fan 16 in electrical machinery are formed in front wall 2b of said body 2 of a clarification machine, it connects in electrical machinery and, moreover, these ON-OFF switches 27a and 27b and said sirocco fan 16 can be connected now to a power source. Moreover, the inlet 28 and the emission opening 29 for pouring in or emitting Water W to the lower part of front wall 2b in said lauter tub 12 are prepared, and the closure is always carried out with the cap 30 which can be detached and attached freely.

[0012] The air cleaner A concerning this invention consists of the above-mentioned configuration, and explains the operation below. For example, said air cleaner A is deferred in the proper location of **. And if on-switch 27a is pushed and a sirocco fan 16 is operated, as shown in the drawing 4 view line, the air which became dirty in the body 2 of a clarification machine from the air-intake 5 is adopted, and while descending the ** ON path 8 and entering in a lauter tub 12 from opening 13, the inside of each bamboo pipe 21 will be gone up from the airstream inlet port 26. Within each bamboo pipe 21, air will swell in the rat tail cavernous section 25 by the through-hole 24, it whirls around within each cavernous section 25, and the dust and cigarette smoke in air adhere to the inner skin of the cavernous section 25. This is repeated and it is emitted as beautiful air from the open end of upper limit. Therefore, in order to raise the filtration effectiveness of air, in consideration of the throughput and the residence time of air, about [of the bore of a bamboo pipe 21] about 1/3 has the good diameter of said through-hole 24. Moreover, air is easy for the way with much cavernous section 25 to tend to pile up. And one discharge path 11b is descended through ***** 15, and it is drawn in by the sirocco fan 16, it is discharged by discharge path 11a of another side, this discharge path 11a is gone up, and it is indoors emitted from the purification air exhaust port 6. Thus, purification of air is performed. Moreover, it is useful to desiccation prevention of ** which a certain amount of humidity is also held and is using the stove etc. from Water W being stored in this case. Moreover, since the raw bamboo is used for coincidence, when air passes raw

Takeuchi, a natural scent is brewed and the relaxation effectiveness equivalent to a forest bath is acquired. [0013] Thus, when dust and cigarette smoke adhere to the inner skin of a bamboo pipe 21 mostly and an exchange stage comes by having used it for a long time, a handle 31 is held, a cover plate 4 is opened, and a bamboo pipe 21 is exchanged for a new thing. Moreover, if Water W runs short, it will remove cap 30, will connect a hose to an inlet 28, and will supply Water W. Although said bamboo pipe 21 was set up in the lauter tub 12 as it was, if cloth is wound around the peripheral face of a bamboo pipe 21, you may make it cover and it does in this way, the clearance between about [that a raw bamboo withstands long use] or each bamboo pipe 21 will also be taken up small, and its filtration effectiveness will improve. Moreover, it is horizontally put to sleep, and a bamboo pipe 21 is good as for a method of arrangement ****, in this case, it makes a bamboo pipe 21 half-segmented, and accumulates it on length.

[0014] As mentioned above, the air cleaner A concerning this invention uses the bamboo which is a natural object, and a deployment is achieved although seldom originally used. Moreover, the structure of an air cleaner A is easy, it becomes easy to manufacture it, and cost can also be made as it is cheap.

[0015]

[Effect of the Invention] As explained above, the air cleaner concerning this invention An air-intake, the lauter tub for filtering air, and the purification air exhaust port for discharging the filtered air outside, The blower which adopts air from said air-intake and emits the air from a purification air exhaust port through a lauter tub, It consists of a configuration which has arranged two or more bamboo pipes which are made to penetrate the interior and air passes in a preparation and said septic tank. The air which became dirty by operating a blower is adopted in the body of a clarification machine, and pass through the inside of the bamboo pipe of the plurality of a lauter tub, and dust, cigarette smoke, etc. within the air adhere to bamboo pipe inner skin, and are filtered. The purified air is emitted out of the body of a clarification machine from a purification air exhaust port, and, thereby, purification of air is attained.

[0016] And since the bamboo which is a natural object is used, although seldom originally used, a deployment is achieved, moreover, the structure of an air cleaner is easy, it becomes easy to manufacture it by this, and cost can also be made as it is cheap. Moreover, there is no need of having performed exchange of a bamboo pipe for a long time, thereby, a maintenance is easy and it becomes there is also little failure and possible for it to long-term use it.

[0017] Moreover, when air passes raw Takeuchi as a bamboo pipe is a raw bamboo, a natural scent is brewed and the relaxation effectiveness equivalent to a forest bath is acquired. Moreover, some bamboo pipes can diffuse the air which the bamboo pipe always got wet, and the filtration effectiveness did not fall, and became wet moderately since it was immersed underwater, and there is the humidification effectiveness.

[0018] If the through-hole of the circle configuration which has the diameter of the dimension of about 1/3 of the bore of a bamboo pipe is established in each knot of a bamboo pipe, the purification effectiveness will improve that air tends to pile up in the cavernous circles of each internode of a bamboo pipe.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any
damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] The air cleaner installed in the former, for example, the interior of a room, is the structure which emits again indoors the air filtered and purified with through and this filter in the air adopted from the air-intake by the blower by the filter installed in a lauter tub free [attachment and detachment] from a purification air exhaust port, and he is trying to purify indoor air by this. And said unclean filter is periodically made new.

[Translation done.]

JPO and NCIP are not responsible for any
damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] An air-intake for the air cleaner concerning this invention to adopt air in the body of a clarification machine, in order to attain this purpose, The lauter tub for filtering the air adopted from this air-intake, and the purification air exhaust port for discharging the filtered air out of the body of a clarification machine, It has the blower which adopts air from said air-intake and emits the air from a purification air exhaust port through a lauter tub, and consists of a configuration which has arranged two or more bamboo pipes which are made to penetrate the interior and said air passes in said septic tank. Then, if a blower is operated, the air which became dirty from the air-intake will be adopted in the body of a clarification machine, and it will pass through the inside of the bamboo pipe of the plurality of a lauter tub. Under the present circumstances, dust, cigarette smoke, etc. within air adhere to bamboo pipe inner skin, and are filtered, and purification of air is attained. And the purified air is emitted out of the body of a clarification machine from a purification air exhaust port.

[0006] The raw bamboo of said bamboo pipe is desirable, and when air passes raw Takeuchi, the relaxation effectiveness equivalent to a forest bath is acquired. Moreover, some bamboo pipes can diffuse the air which the bamboo pipe always got wet, and the purification effectiveness did not fall, and became wet moderately since it was immersed underwater, and there is the humidification effectiveness.

[0007] It is desirable to establish the through-hole of the circle configuration which has the diameter of the dimension of about 1/3 of the bore of a bamboo pipe in each knot of a bamboo pipe. Thereby, the purification effectiveness improves that air tends to pile up in the cavernous circles of each internode of a bamboo pipe.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of operation of the air cleaner concerning this invention is explained based on a drawing. This flat-surface sectional view and drawing 4 of the perspective view and drawing 3 which show the condition that drawing 1 opened the perspective view of an air cleaner, and drawing 2 opened this cover plate are these side-face sectional views. Among drawing, A is an air cleaner, and a top face carries out opening, and the interior consists of a longwise rectangular parallelepiped configuration in the air, and it consists of a product made from plastics. Said top-face opening 1 is equipped with the cover plate 4 which plugs up said top-face opening 1 through a hinge 3 on the posterior-wall-of-stomach 2a upper limit edge of the body 2 of a clarification machine free [closing motion]. And an air-intake 5 is established in the upper part of front wall 2b, and the purification air exhaust port 6 is established by the posterior part of said cover plate 4 again.

[0009] In said body 2 of a clarification machine, as shown in drawing 3 and 4, the ** ON path 8 connected with an air-intake 5 is formed between front wall 2b and the first septum 7 stretched among both-sides wall 2c. Moreover, the discharge paths 11a and 11b are formed between the second septum 9 and this second septum 9 which are stretched between posterior-wall-of-stomach 2a and both-sides wall 2c, and the third septum 10. And the lauter tub 12 is formed between said first septum 7 and third septum 10. Furthermore, if it explains in detail, the lower limit section of said first septum 7 will be excised, and the ** ON path 8 and the lauter tub 12 will open it for free passage through the opening 13. On the other hand, the pyramid cover frame 14 of an abbreviation square drill configuration is formed in the rear face of said cover plate 4 at one, and when a cover plate 4 is shut, the upper limit side of a lauter tub 12 is sealed by this pyramid cover frame 14. Moreover, said discharge path 11b and ***** 15 open for free passage are formed in the posterior part of this **** cover frame 14, and a lauter tub 12 and the discharge paths 11a and 11b are open for free passage through this ***** 15. Furthermore, the lower limit section of the second septum 9 is excised, and the sirocco fan 16 as a blower is arranged in this excision section. It connects with discharge path 11b in which the inlet 17 side of this sirocco fan 16 is connected with said lauter tub 12, and connects with discharge path 11a in which an exhaust-port 18 side is connected with the purification air exhaust port 6. Thus, since the upper limit side of a lauter tub 12 is covered with the **** cover frame 14 in the shape of sealing, the suction effectiveness of a sirocco fan 16 is heightened so that air may not leak.

[0010] From 2d of bottom walls, as a periphery is supported with the stiffener 19 formed a little in the inner skin of front wall 2b and side-attachment-wall 2c and the third septum 10 up, a funnel web 20 is arranged horizontally and this

funnel web 20 is flooded further, Water W is stored by the pars basilaris ossis occipitalis of said lauter tub 12. And into the lauter tub 12, as a lower limit is supported by the top face of said funnel web 20, set-up arrangement of two or more bamboo pipes 21 is carried out. The raw bamboo of this each bamboo pipe 21 which is a natural object is the optimal, and when it sets up on the funnel web 20 top face of said lauter tub 12, upper limit is set as the die length located a little downward from the inferior surface of tongue of a cover plate 4. Moreover, as shown in drawing 5, a vertical end face is opened wide and it has two or more knots 22 in the meantime. The through-hole 24 of the circle configuration penetrated up and down to the abbreviation center position, respectively is established by the node section 23 of each knot 22. although about 1/3 of the bore of a bamboo pipe 21 is desirable as for the diameter of this through-hole 24 -- in addition, said diameter and abbreviation -- it is the same or the half, a quarter, or about 1/10 are good. The cavernous section 25 between each knot 22 will be open for free passage with this through-hole 24. Two or more establishment of the airstream inlet port 26 which is open for free passage with cavernous section 25a of the lowest edge in the lower limit section of a bamboo pipe 21 is carried out. in addition, instead of establishing a hole -- the lower limit section -- as -- lacking -- you may make . Thus, the bamboo pipe 21 formed turns the airstream inlet port 26 to said lauter tub 12 down, and is set up without a clearance. Under the present circumstances, although the lower limit of each bamboo pipe 21 is flooded with Water W, the airstream inlet port 26 is flooded.

[0011] The ON-OFF switches 27a and 27b for operating a sirocco fan 16 in electrical machinery are formed in front wall 2b of said body 2 of a clarification machine, it connects in electrical machinery and, moreover, these ON-OFF switches 27a and 27b and said sirocco fan 16 can be connected now to a power source. Moreover, the inlet 28 and the emission opening 29 for pouring in or emitting Water W to the lower part of front wall 2b in said lauter tub 12 are prepared, and the closure is always carried out with the cap 30 which can be detached and attached freely.

[0012] The air cleaner A concerning this invention consists of the above-mentioned configuration, and explains the operation below. For example, said air cleaner A is deferred in the proper location of **. And if on-switch 27a is pushed and a sirocco fan 16 is operated, as shown in the drawing 4 view line, the air which became dirty in the body 2 of a clarification machine from the air-intake 5 is adopted, and while descending the ** ON path 8 and entering in a lauter tub 12 from opening 13, the inside of each bamboo pipe 21 will be gone up from the airstream inlet port 26. Within each bamboo pipe 21, air will swell in the rat tail cavernous section 25 by the through-hole 24, it whirls around within each cavernous section 25, and the dust and cigarette smoke in air adhere to the inner skin of the cavernous section 25. This is repeated and it is emitted as beautiful air from the open end of upper limit. Therefore, in order to raise the filtration effectiveness of air, in consideration of the throughput and the residence time of air, about [of the bore of a bamboo pipe 21] about 1/3 has the good diameter of said through-hole 24. Moreover, air is easy for the way with much cavernous section 25 to tend to pile up. And one discharge path 11b is descended through ***** 15, and it is drawn in by the sirocco fan 16, it is discharged by discharge path 11a of another side, this discharge path 11a is gone up, and it is indoors emitted from the purification air exhaust port 6. Thus, purification of air is performed. Moreover, it is useful to desiccation prevention of ** which a certain amount of humidity is also held and is using the stove etc. from Water W being stored in this case. Moreover, since the raw bamboo is used for coincidence, when air passes raw Takeuchi, a natural scent is brewed and the relaxation effectiveness equivalent to a forest bath is acquired.

[0013] Thus, when dust and cigarette smoke adhere to the inner skin of a bamboo pipe 21 mostly and an exchange stage comes by having used it for a long time, a handle 31 is held, a cover plate 4 is opened, and a bamboo pipe 21 is exchanged for a new thing. Moreover, if Water W runs short, it will remove cap 30, will connect a hose to an inlet 28, and will supply Water W. Although said bamboo pipe 21 was set up in the lauter tub 12 as it was, if cloth is wound around the peripheral face of a bamboo pipe 21, you may make it cover and it does in this way, the clearance between about [that a raw bamboo withstands long use] or each bamboo pipe 21 will also be taken up small, and its filtration effectiveness will improve. Moreover, it is horizontally put to sleep, and a bamboo pipe 21 is good as for a method of arrangement ****, in this case, it makes a bamboo pipe 21 half-segmented, and accumulates it on length.

[0014] As mentioned above, the air cleaner A concerning this invention uses the bamboo which is a natural object, and a deployment is achieved although seldom originally used. Moreover, the structure of an air cleaner A is easy, it becomes easy to manufacture it, and cost can also be made as it is cheap.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any
damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view of the air cleaner concerning this invention.

[Drawing 2] The perspective view showing the condition of having opened this cover plate.

[Drawing 3] This flat-surface sectional view.

[Drawing 4] This side-face sectional view.

[Drawing 5] The perspective view of a bamboo pipe.

[Description of Notations]

2 Body of Clarification Machine

5 Air-intake

6 Purification Air Exhaust Port

12 Lauter Tub

16 Blower (Sirocco Fan)

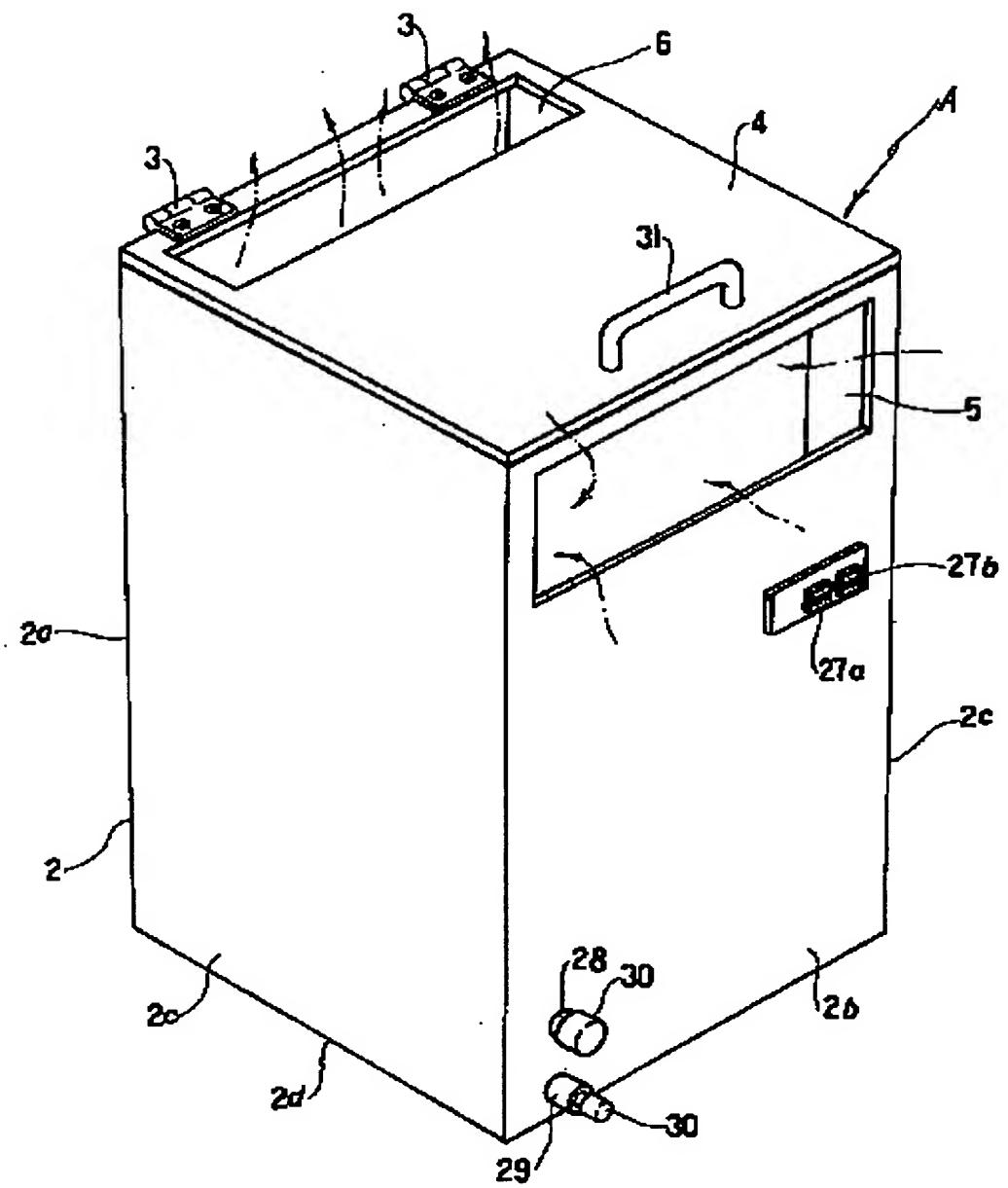
21 Bamboo Pipe

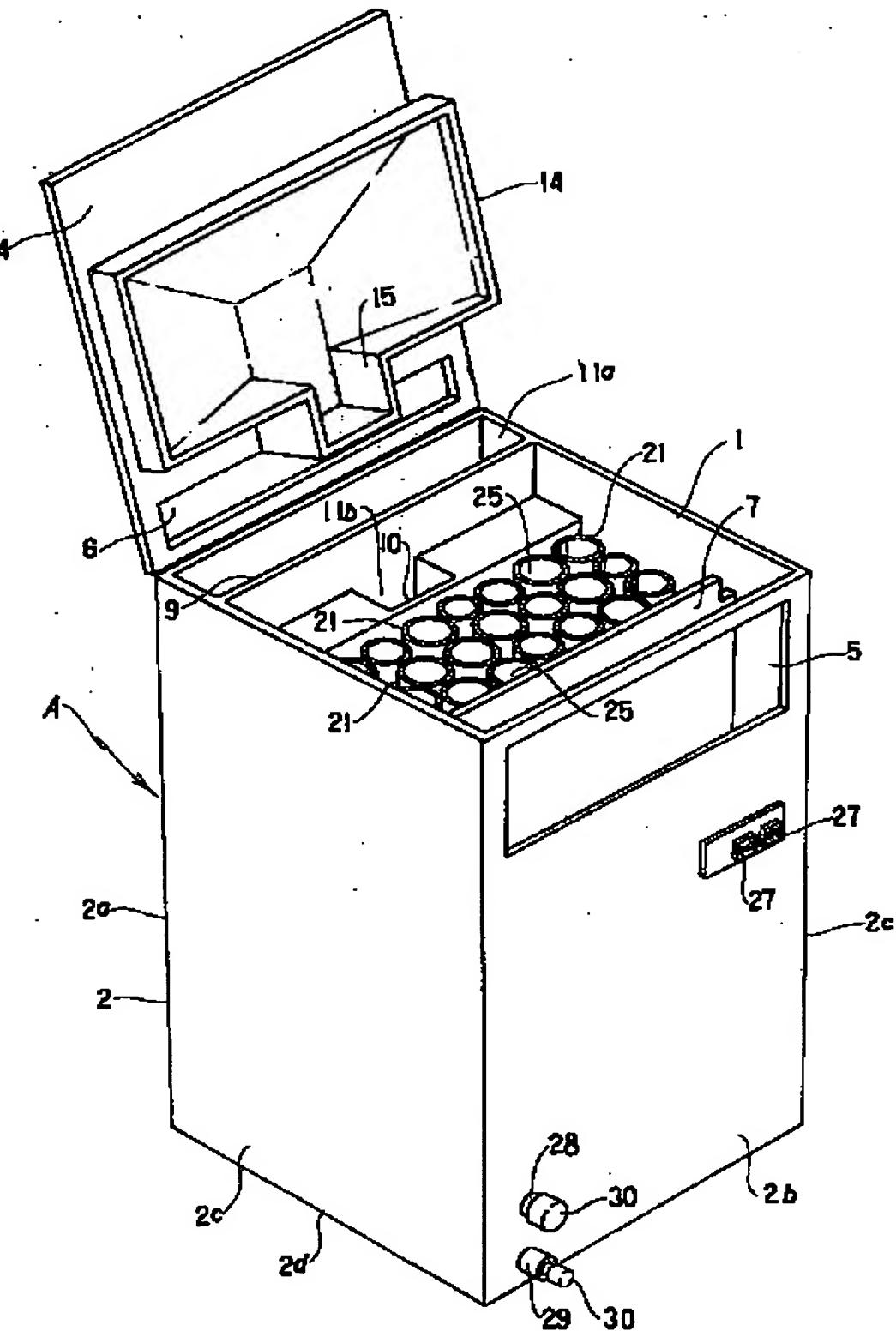
24 Through-hole

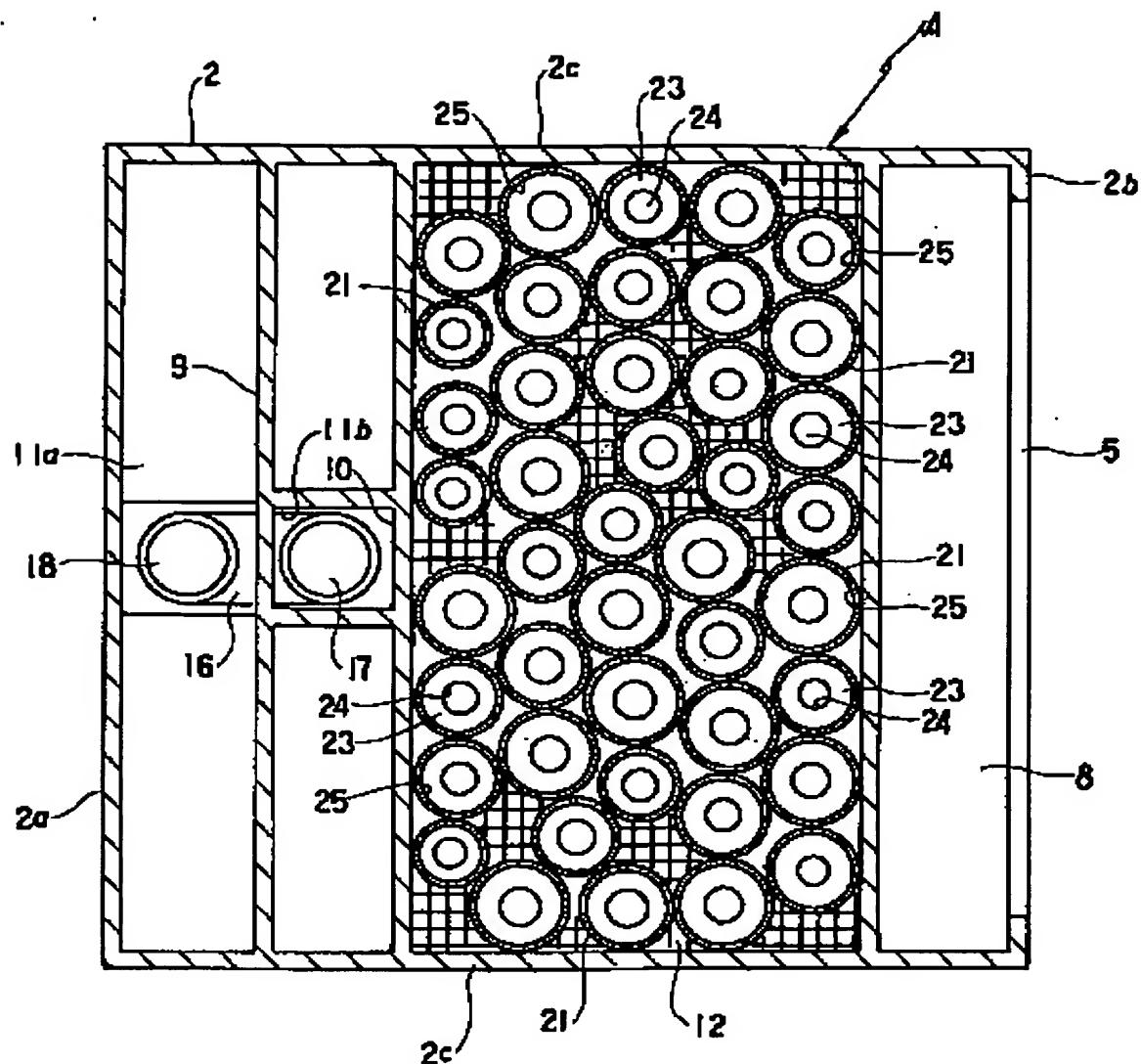
A Air cleaner

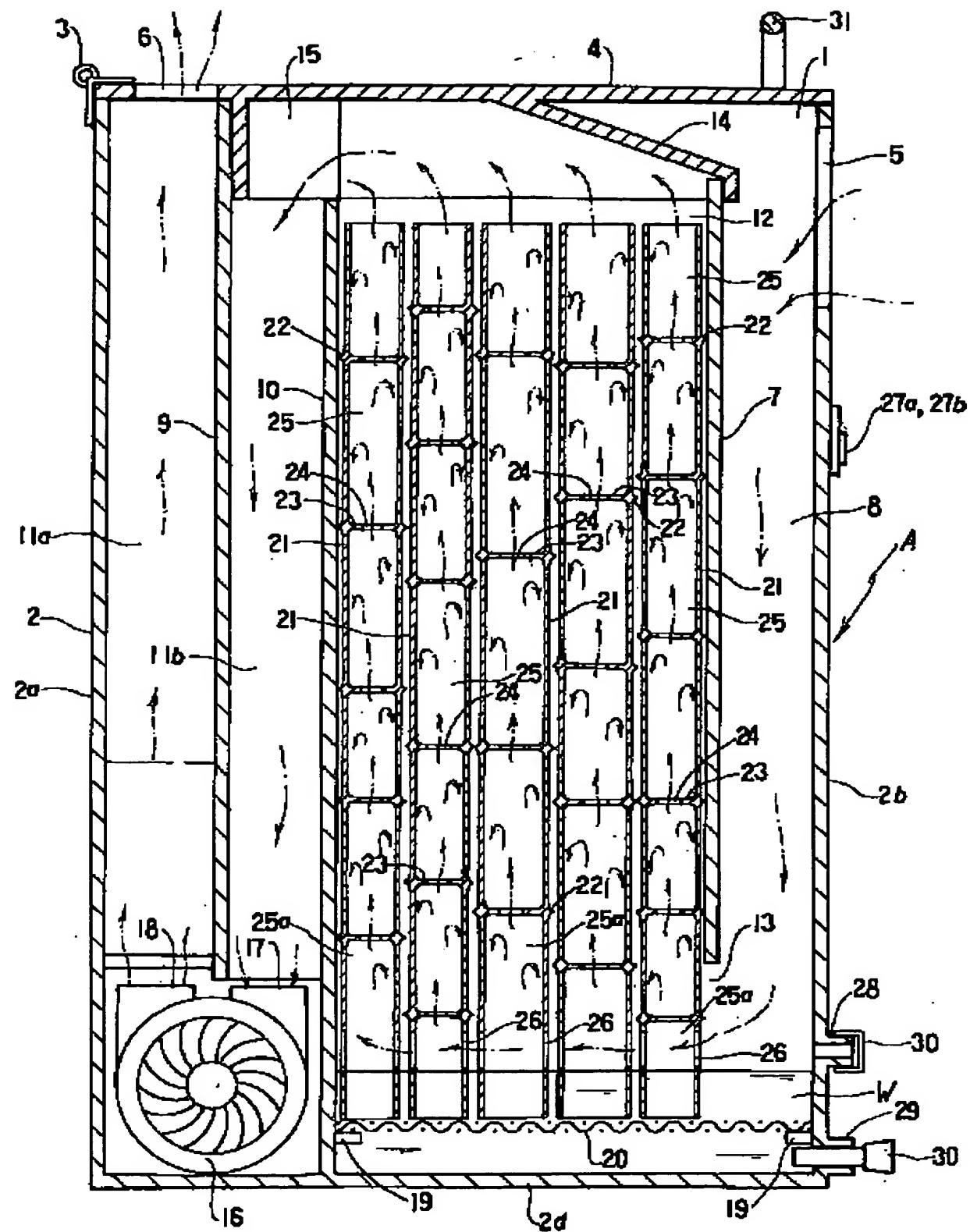
W Water

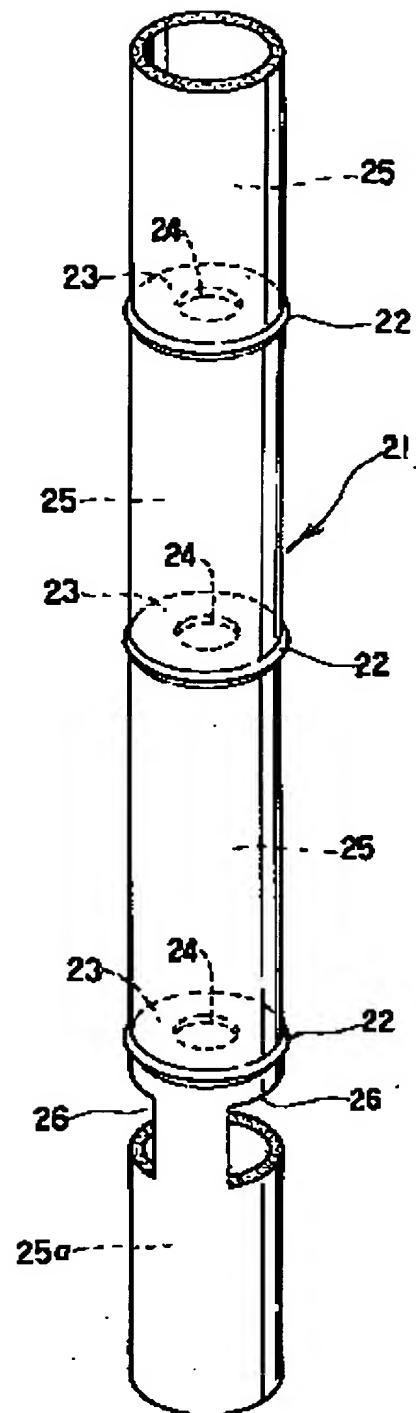
[Translation done.]











This Page is inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT OR DRAWING
- BLURED OR ILLEGIBLE TEXT OR DRAWING
- SKEWED/SLANTED IMAGES
- COLORED OR BLACK AND WHITE PHOTOGRAPHS
- GRAY SCALE DOCUMENTS
- LINES OR MARKS ON ORIGINAL DOCUMENT
- REPERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images
problems checked, please do not report the
problems to the IFW Image Problem Mailbox